COST BENEFIT ANALYSIS OF COMPOSTING PRACTICES IN WESTERN PROVINCE OF SRI LANKA

By

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The Dissertation was submitted to the Department of Management of Technology of the University of Moratuwa in partial fulfillment of the requirement for the Degree of Master of Business Administration.

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December 2004

Declaration

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any University to the best of my knowledge and belief it does not contain any material previously published, written or orally communicated by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations.

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To the best of my knowledge, the above particulars are correct.

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ACKNOWLEDGEMENT

I extend my deepest gratitude and sincere thanks to my academic supervisors Dr. Ajith De Alwis, Head, Dept. of Chemical and Process Engineering, University of Moratuwa and Mr. Paul Steele, Research Associate, Institute of Policy Studies for their guidance and encouragement to make this task a success.

I take this opportunity to thank all the relevant officials at the Department of Management of Technology, University of Moratuwa including Dr. Chandana Perera, Dr. Sarath Dassanayake , Ms. Hasanthi, Ms. Dilani and Mr. Sampath.

My special word of thanks goes to Dr. Sumith Pilapitiya, World Bank for providing valuable ideas and guidance at the initial stage of this research work.

I offer my gratitude and thanks to Dr. Sunil Chandrasiri, Senior Lecturer, Department of Economics, University of Colombo for sharing some data and ideas.

I deeply express my sincere thanks to Mr. Avanthi Jayahthilaka, CEO, EML Consultants and Mr. Sumith Jayawardena, Manager, BETL and Dr. Ranjan Jayaratna, Head- Research and Development, BETL for their support and cooperation in acquiring essential data and information for my study.

I wish to express my thanks to Mr. D.K.D. Silva, GM, Waste Management Technology Private Ltd for providing me valuable data which was very important for my study.

I offer my great thanks to Prof. Ben Basnayaka for providing valuable ideas and information relevant to this study.

My special thanks go to Mr. Lalith Wickramaratne, Director, Solid Waste Management, Mrs. Devika Abesuriya, Superintending Engineer and other officials at Colombo Municipal Council. Moreover, my special thanks go to the officials of Moratuwa Municipal Council, Horana & Kalutara urban councils for helping me obtaining data from those Local Authorities

I also greatly appreciate some of my friends for their support in completing this task, including Mr. Buddhika De Silva and Mr. Subakaran, EML Consultants, Ms. Diana De Alwis and Kema Kasturiarachchi, Ministry of Environment and Natural Resources.

At last but not least, a special word of thanks is due to my husband, my parents and my mother-in law and father-in-law for their kind support throughout this project work.

ABSTRACT

Management of solid waste is a growing problem in Sri Lanka. At present the crucial problem faced by Local Authorities (LAs) is not merely the increase of waste generation rate but also the haphazard disposal practices. Open dumping of solid waste has been the most common disposal practice in Sri Lanka, which is associated with the highest environmental, health and social costs compared to improved disposal methods. The analysis of data on waste stream of Sri Lanka reveals that over 80% -- a largest fraction of domestic and commercial solid waste is organic and biodegradable--suitable for compost production. In addition, the climatic conditions of the country optimum for composting practices. Moreover, compost could be used in improving the productivity of agricultural lands as the major proportion (44%) of agricultural lands in Sri Lanka faces the problem of low productivity due to soil erosion.

This study attempts to understand the economics of composting practices in the Western Province of Sri Lanka, whether composting in Sri Lanka is cost effective in the financial and social framework. Specific objectives are (1) Review financial and economic viability of organic solid waste management in Sri Lanka with special emphasis on composting practices. (2) Analyze the role of economic instruments making composting economically viable

The study collects data from compost plants recently operated and currently operating in Western Province of Sri Lanka. In addition, it collects data from a sample of local authorities and also other various stakeholders of compost facilities such as compost sellers and buyers and professionals. Financial Cost benefit Analysis is carried out for each compost plant and this is followed by the concepts of Social Cost Benefit Analysis.

Findings of the study reveal that the composting practices in Sri Lanka are not financially viable--the financial benefits currently gained from composting are less than the costs incurred--. The study emphasizing the need to view composting as a system element of an Integrated Sustainable Waste Management framework. This study argues that the gap between cost and benefits of composting should be compensated by the local authorities

since properly controlled composting helps to minimize the social cost involved in poor solid waste management services such as open dumping. The findings also emphasize the need for changing the allocation of solid waste budgets of local authorities in such as way to allocate considerable proportion for safe waste disposal rather than spending the entire resources on waste collection and transportation. The study also discusses some economic instruments which can be used for revenue generation and cost recovery by local authorities related to the solid waste management.

The study further points out that composting facilities should not rely on compensation paid by local authorities and should develop a sustainable market for their compost products which is essential for their long-term survival.

The findings also reveal that the centralized large scale compost facility shows higher cost benefit ratio compared to decentralized composting practices due to many reasons. In addition, study suggests some economic instruments, which can be used to improve the viability of composting practices and also to address the current waste disposal problems socially, economically and in an environmentally sound manner.

ABBREVIATIONS

SWM	Solid Waste Management
JICA	Japan International Cooperation Agency
LA	Local Authorities
ISWM	Integrated Sustainable Waste Management
ADB	Asian Development Bank
CMC	Colombo Municipal Council
MC	Municipal Council
UC	Urban Council
PS	Pradesheeya Sabha
BETL	Burns Environmental Technology Private Ltd
CBOs	Community Based Organizations
PET	Polyethylene Terephathalate
PVC	Polyvinyl Chloride
CEA	Central Environment Authority
NEA	National Environmental Act
EIA	Environmental Impact Assessment
IEE	Initial Environmental Examination
SLSI	Sri Lanka Standard Institution
EM	Effective Micro organisms
MEIP	Metropolitan Environmental Improvement Program

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